



## Chicago Metropolitan Agency for Planning

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### MEMORANDUM

**To:** CMAP Freight Committee

**From:** CMAP Staff

**Date:** January 25, 2016

**Re:** Regulatory environment of trucking

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Complicated truck routing and restrictions in the region create challenges to the efficient movement of freight along the road network. Trucks must navigate a web of federal, state, and local truck routes and restrictions to move freight through the region. As GO TO 2040 suggests, this complex system hampers the efficiency of truck movement and increases highway congestion. This memo outlines federal, state, and local truck routing and restriction layers to illustrate the complexity of truck movement in the region. This discussion focuses on trucks with typical loads and dimensions, rather than over size or overweight trucks.<sup>1</sup>

#### ***Federal truck size and weight regulations***

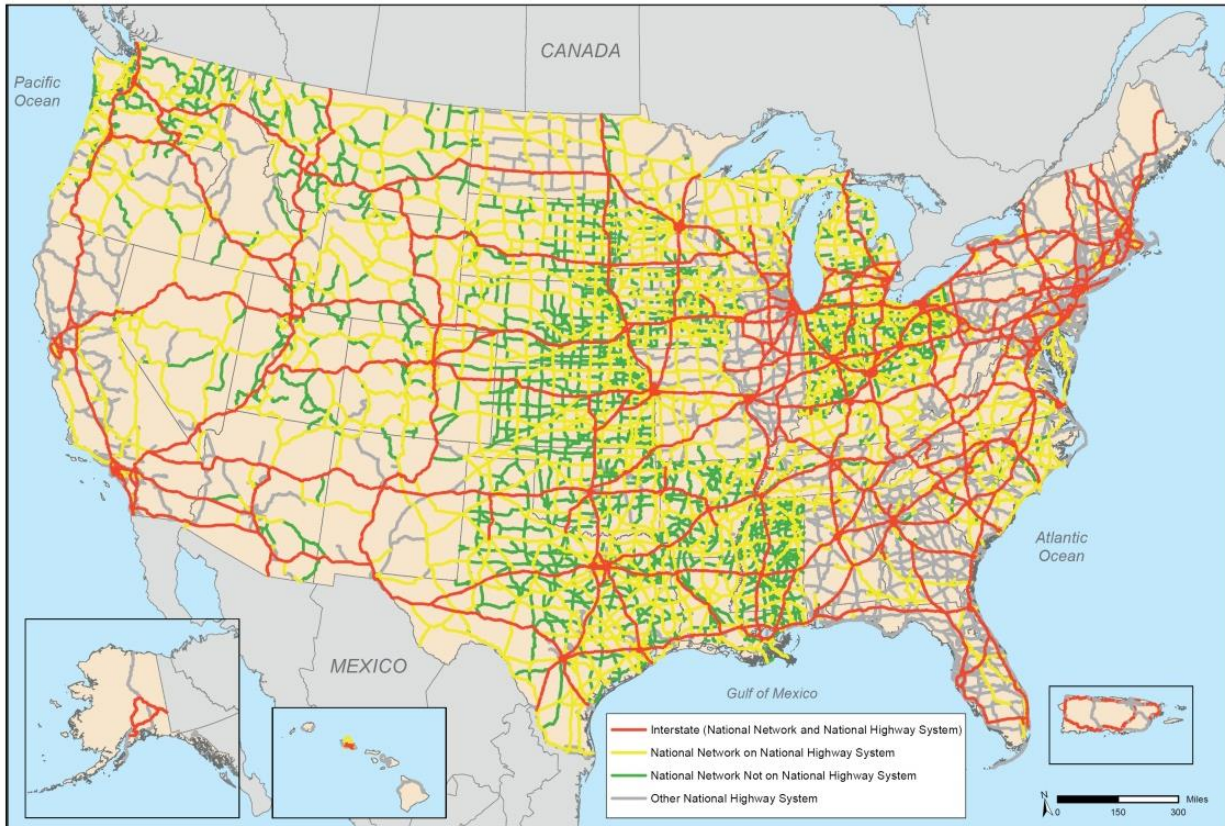
The federal government sets length, width, and weight standards which allow conventional trucks to move across the country, while also allowing some flexibility for adjustments to meet the needs of individual states. The National Network (NN) is a federally-designated network of highways across the country where conventional trucks are allowed to travel and consists of designated portions of the Interstate Highway System and other highways that were part of the Federal-Aid Primary System<sup>2</sup> before 1991, consisting of approximately 200,000 miles.

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<sup>1</sup> This analysis does not address oversize and overweight (OSOW) trucks, instead limiting the discussion to the regulations pertaining to trucks that are within the standard size and weight. Assessment of OSOW permits and processes in the 7-county Chicago region is underway through the Regional Truck Permitting initiative. More information is available at <http://www.cmap.illinois.gov/programs-and-resources/lta/regional-truck-permitting>.

<sup>2</sup> The Federal-Aid Primary System consisted of an interconnected system of important highways designated by state highway departments, including portions of the Interstate System.

National Network for Conventional Combination Trucks: 2013



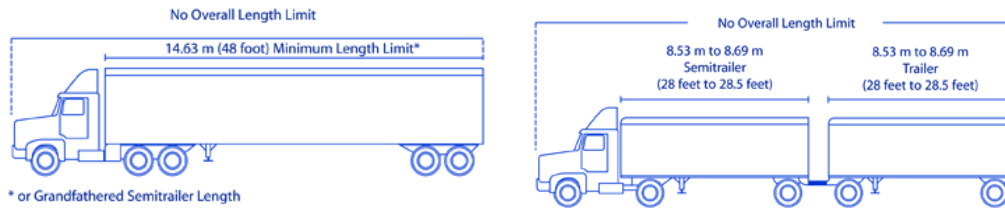
Notes: This map should not be interpreted as the official National Network and should not be used for truck size and weight enforcement purposes. The National Network and the National Highway System (NHS) are approximately 200,000 miles in length, but the National Network includes 65,000 miles of highways beyond the NHS, and the NHS encompasses about 50,000 miles of highways that are not part of the National Network. "Other NHS" refers to NHS mileage that is not included on the National Network. Conventional combination trucks are tractors with one semitrailer up to 48 feet in length or with one 28-foot semitrailer and one 28-foot trailer. Conventional combination trucks can be up to 102 inches wide. Source: U.S. Department of Transportation, Federal Highway Administration, Office of Freight Management and Operations, *Freight Analysis Framework*, version 3.4, 2013.

The NN has federal width and length limits for trucks, but these length requirements are better thought of as minimum lengths that states must allow on the NN. States must allow minimum conventional truck lengths of either one semitrailer up to 48 feet or two attached combinations consisting of a semitrailer-trailer, each of which may be 28 to 28.5 feet long; longer combinations are not to be allowed unless the regulations were grandfathered in 1981. Twenty-five states allow 53-foot trailers without special permits, including Illinois.<sup>3</sup> The maximum length a state can allow for a trailer or semitrailer-trailer combination is 65 feet. States must allow trucks up to 8.5 feet wide.

While the NN has length limits for trailers, there are no federal limits for the overall vehicle length (i.e. including the truck tractor). There is also no height restriction for trucks defined on the federal level. Rather, states can set their own height restrictions; in Illinois, the maximum allowable height is 13.5 feet, though some roads have lower clearance restrictions.

<sup>3</sup> U.S. Department of Transportation, Federal Highway Administration, *Federal Size Regulations for Commercial Motor Vehicles* (Washington, DC: 2015), accessed January 13, 2015, [http://ops.fhwa.dot.gov/FREIGHT/publications/size\\_regs\\_final\\_rpt/index.htm](http://ops.fhwa.dot.gov/FREIGHT/publications/size_regs_final_rpt/index.htm).

### Conventional truck dimensions outlined by the National Network



Source: FHWA Federal Size Regulations for Commercial Motor Vehicles

In addition to allowing conventional trucks on the NN, states must allow these trucks “reasonable access” between the NN and locations where freight is originating, terminating, or handled, as well as locations that provide access to food, fuel, repairs, and rest facilities. Trucks may access any of these sites within 1 mile of the NN by the most reasonable route. If a truck needs access to a site over 1 mile from the NN, a route must be requested from the State, unless a state or locally-designated truck route is available.

While the NN does not specify weight limits on the system, the Interstate System does specify national weight standards for trucks; weight limits for non-Interstate roadways are set by individual states. The maximum allowable gross weight for trucks traveling on Interstates is 80,000 pounds.<sup>4</sup> Certain states have greater weight limits and maximum lengths for trucks with two or more trailing units (known as longer combination vehicles), which were grandfathered in through ISTEA in 1991. Since Illinois did not establish higher weight and length requirements before 1991, longer combination vehicles are not allowed in the state, and any oversize and overweight truck must obtain a special permit from IDOT. Congress has granted some exemptions to these weight limits, for example, a pilot program allowing heavier trucks in Maine and Vermont in 2010 and several permanent exemptions for specific vehicle types operating on Interstates in various states in 2015.<sup>5</sup>

The last major federal truck restriction involves bridge load limits on the Interstate System. The federal government introduced a bridge formula in 1975 to reduce damage to bridges by requiring carriers to distribute weight across more axles. The formula sets load limits based on the number of axles and the space between axles.<sup>6</sup> A single axle can carry up to 20,000 pounds

<sup>4</sup> U.S. Department of Transportation, Federal Highway Administration, *Commercial Vehicle Size and Weight Program* (Washington, DC: 2013), accessed January 13, 2015, <http://ops.fhwa.dot.gov/Freight/sw/overview/index.htm>.

<sup>5</sup> U.S. Department of Transportation, Federal Highway Administration, *Maine and Vermont Interstate Highway Heavy Truck Pilot Program 6-Month Report* (Washington, DC: 2012), accessed January 13, 2015, [http://ops.fhwa.dot.gov/freight/sw/reports/me\\_vt\\_pilot\\_2012/#s2](http://ops.fhwa.dot.gov/freight/sw/reports/me_vt_pilot_2012/#s2).

<sup>6</sup> U.S. Department of Transportation, Federal Highway Administration, *Bridge Formula Weights* (Washington, DC: 2015), accessed January 13, 2015, [http://ops.fhwa.dot.gov/Freight/publications/brdg\\_frm\\_wgths/index.htm](http://ops.fhwa.dot.gov/Freight/publications/brdg_frm_wgths/index.htm).

per axle and two axles can carry up to 34,000 pounds per tandem axle. A typical, single-trailer truck has five axles.

### Federal and state truck standards

	Federal truck standards	State Standards
<b>Vehicle Length</b>	No federal limit for the overall truck length on the National Network	No overall truck length limit on state designated truck routes. Length limits may apply on other highways.
<b>Trailer Length</b>	States must allow semitrailers to be at least 48 feet in any truck tractor-semitrailer combination on the NN. For trucks with a tractor-semitrailer-trailer combination, states must allow at least 28 to 28.5 feet semitrailers or trailers on the NN.	Illinois and 25 other states allow 53 foot tractor-semitrailer combination.
<b>Vehicle Width</b>	The width limit is 8.5 feet.	No state can impose a width of more or less than this limit.
<b>Vehicle Height</b>	There is no federal height limit.	States set their own standards. In Illinois, the maximum allowable height on any highway is 13.5 feet.
<b>Vehicle Weight</b>	Maximum weight is 80,000 lbs. on the Interstate system.	States with higher weight limits established prior to 1991 may retain those limits for longer combination vehicles.
<b>Vehicle Weight on Bridges</b>	The federal government created a formula that sets the weight limits based on the number of axles and the space between axles to determine the weight allowed over bridges on the Interstate System.	All states must comply with the bridge formula, meaning a single axle can carry up to 20,000 pounds and two axles can carry up to 34,000 pounds.

Source: Adapted from the Federal Highway Administration's Commercial Vehicle Size and Weight Program and the Illinois Vehicle Code.

### State and local truck routes

There are three primary classes of designated truck routes in Illinois: Class I, Class II, and Locally Preferred Truck Routes.<sup>7</sup> Class I truck routes consist of the NN designated routes, generally consisting of the expressway system. Class II routes include major state highways as well as local roads that have been designated by ordinance as a truck route. Local governments are allowed to designate roads under their jurisdiction as Class II truck routes; governments must report the designated routes to IDOT and post signage indicating the truck route. Finally, Locally Preferred Truck Routes include only truck routes administratively identified by local

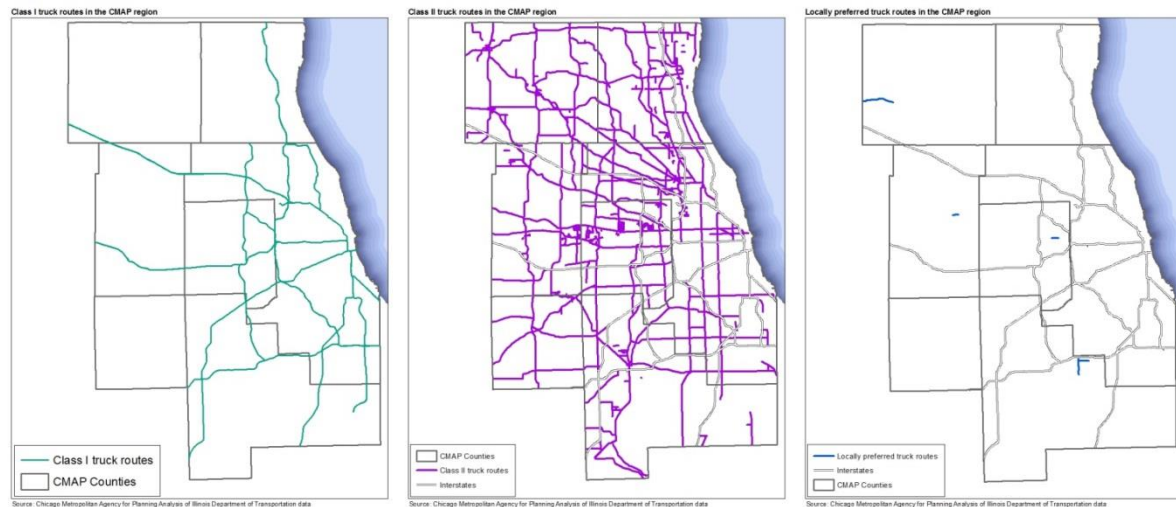
<sup>7</sup> Illinois also has Class III truck routes, but the legal effect of these has been made mostly moot by recent legislation increasing legal loads to 80,000 pounds (PA 96-0034 and PA 96-0037).



## Agenda Item No. 6.0

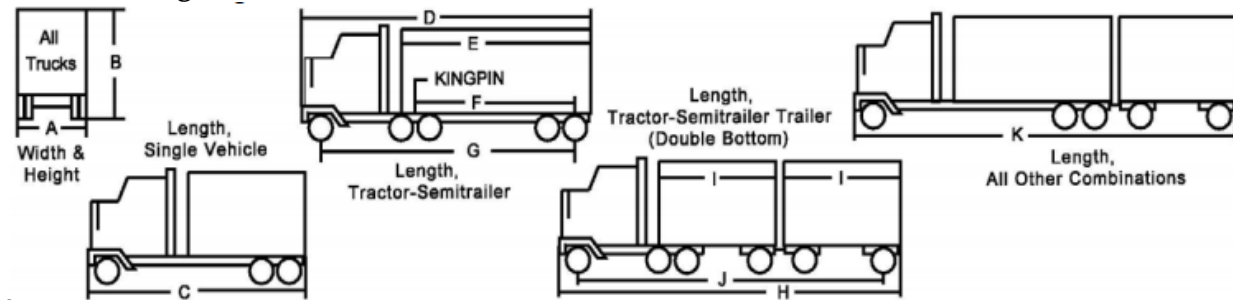
governments and are not considered a designated truck route. Locally Preferred Truck Routes have no effect on truck size and weight. Like Class II routes, local agencies must report Locally Preferred Truck Routes to IDOT.

IDOT is required to maintain a list of all Class I, Class II (including locally-designated routes), and locally preferred truck routes. Local governments are also required to report their designated Class II and locally preferred truck routes to IDOT, or report that they have no truck route. Local truck restrictions must have signage posted, but do not need to be reported to the state.



As Class I routes consist of the NN routes, all trucks must comply with federal size and weight restrictions, with the allowance for 53-foot semitrailers instead of 48-foot semitrailers in Illinois and some other states. Class II size restrictions closely match those of Class I routes, with one exception detailed in the table below. In contrast, the size restrictions for trucks on undesignated local roads and streets vary from restrictions on Class I and II designated truck routes in several ways. Rather than limiting the size of the semitrailer and trailer, trucks traveling on these routes have a limited total vehicle length for semitrailers of 55 feet and total vehicle length for semitrailer and trailer combinations of 60 feet. Locally Preferred Truck Routes are determined administratively by local governments, and are not considered designated truck routes, which must be approved by ordinance. Locally Preferred Truck Routes have no specific size or weight restrictions codified into Illinois law.

# Maximum legal dimensions for trucks in Illinois



TYPE OF HIGHWAY OR STREET	MAXIMUM LEGAL DIMENSIONS											MAXIMUM WEIGHTS		
	A	B	C	D	E	F *4	G	H	I	J	K	Single Axle	Tandem Axle *2	Gross *3
Class I	8'-6"	13'-6"	42'	N.S.	53'	45'-6"	N.S.	N.S.	28'-6"	N.S.	N.S.	20,000	34,000	II
Class II	8'-6"	13'-6"	42'	N.S.	53'	45'-6"	N.S.	N.S.	28'-6"	65'	N.S.	20,000	34,000	II
Class III	8'-6"	13'-6"	42'	65' *1	53'	42'-6"	55' *1	60'	N.S.	N.S.	60'	20,000	34,000	II
Other State Highway	8'-6"	13'-6"	42'	65' *1	53'	42'-6"	55' *1	60'	N.S.	N.S.	60'	20,000	34,000	II
Local Roads & Streets	8'-6"	13'-6"	42'	55'	N.S.	N.S.	N.S.	60'	N.S.	N.S.	60'	20,000	34,000	II
Special Haul Vehicles on all Above Categories	8- 6"	13'-6"	42'	N.S. *5	N.S.	N.S.	N.S.	N.S.	N.S.	N.S.	60'	20,000	34,000	See *6

N.S. indicates legal dimension not specified.

Source: Illinois Department of Transportation, Legal Weights and Dimension

As Class I routes are also NN routes, trucks have the same reasonable access of 1 mile from the NN in order to access terminals that load and unload freight, or facilities that provide food, fuel, rest, and repair. This access applies so long as there is no sign prohibiting access.

For designated State highways, reasonable access is expanded to 5 miles, although the level of access depends on the destination of the truck and truck length, as shown in the table below.

This access applies so long as there is no sign prohibiting access, the truck is no more than 80,000 pounds and is no wider than 8 feet 6 inches, and the roadway is not being used as a thoroughfare between designated State highways.

**Reasonable access for trucks by truck length**

Access for a truck with an overall length of 65 feet		
	Loading and unloading freight	Food, fuel, repairs, and rest
From designated State highway*	5 miles on all municipal, county, and township roads	1 mile on municipal roads 5 miles on county and township roads
Access for a truck over 65 feet long		
	Loading and unloading freight	Food, fuel, repairs, and rest
From Class I	1 mile on all municipal, county, and township roads	
From Class I or Class II	5 miles onto any State designated truck route or locally designated highway	

\*Includes Class I and state-jurisdiction Class II truck routes

Source: CMAP analysis of the Illinois Vehicle Code, Chapter 15

**Local regulatory context**

Many communities across the region struggle to accommodate truck activity and provide adequate infrastructure for trucks. Furthermore, communities may not consistently collaborate to ensure consistent, designated routes across local boundaries. As a result, trucks often use complicated routes on roads that were not built to handle their weights, causing heavy wear and tear that requires intensive road maintenance and strains local governmental budgets. In addition to these physical limitations, communities may choose to limit trucks because of congestion, noise, safety concerns, and air quality impacts from truck traffic that can negatively affect quality of life.

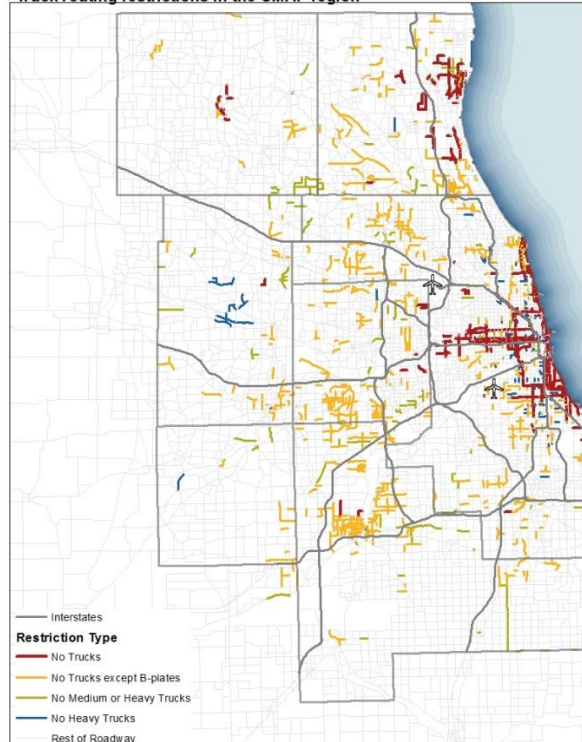
Through state statute, local jurisdictions – counties, townships, and municipalities – have several means to restrict trucks in their communities, including time-of-day delivery restrictions or parking restrictions. The Illinois Municipal Code provides further authority for municipalities to regulate trucks through powers to regulate the use of streets, off-street parking, and the local zoning code. Local roads and bridges may not always be built to handle normal trucks that weigh 80,000 pounds, or have turning radii large enough to accommodate the length of a truck. Local authorities are also allowed to restrict access on local roads and bridges under their jurisdiction based on structural condition or safety.

As previously mentioned, the Illinois Vehicle Code allows local governments to designate Class II truck routes or determine locally preferred truck routes. However, many communities instead opt to restrict where trucks can go. While local jurisdictions must report their designated and locally preferred truck routes to IDOT, they are not required to report truck restrictions. As such, there is no mechanism for reporting truck restrictions to the public or the trucking industry, although local jurisdictions must post signage on restricted roads. Nonetheless, this patchwork approach across communities, where some municipalities designate truck routes and others restrict trucks, coupled with inconsistent reporting, creates confusion across jurisdictional borders.

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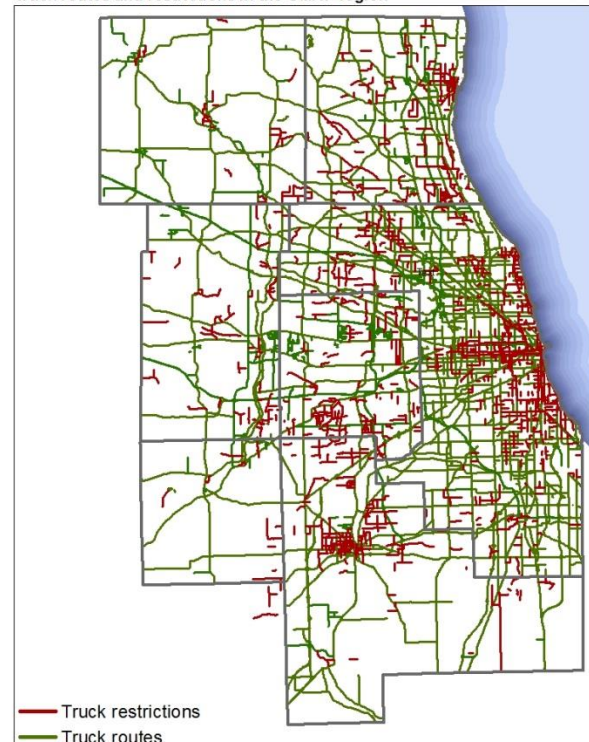
The paired maps below highlighted the complicated interaction of truck routes and restrictions on the region's road network. The map on the left illustrates the variety of truck routing restrictions on the region's Interstates and arterial roadways. Truck routing restrictions are broken out into four categories: no trucks, B-plate only, only light trucks, and no heavy trucks.<sup>8</sup> The map on the right shows the overlay of all of the truck routes referenced above, combined with the truck restrictions in the map on the left.

Truck routing restrictions in the CMAP region



Source: Chicago Metropolitan Agency for Planning Analysis of Illinois Department of Transportation data and Illinois municipal and county codes.

Truck routes and restrictions in the CMAP region



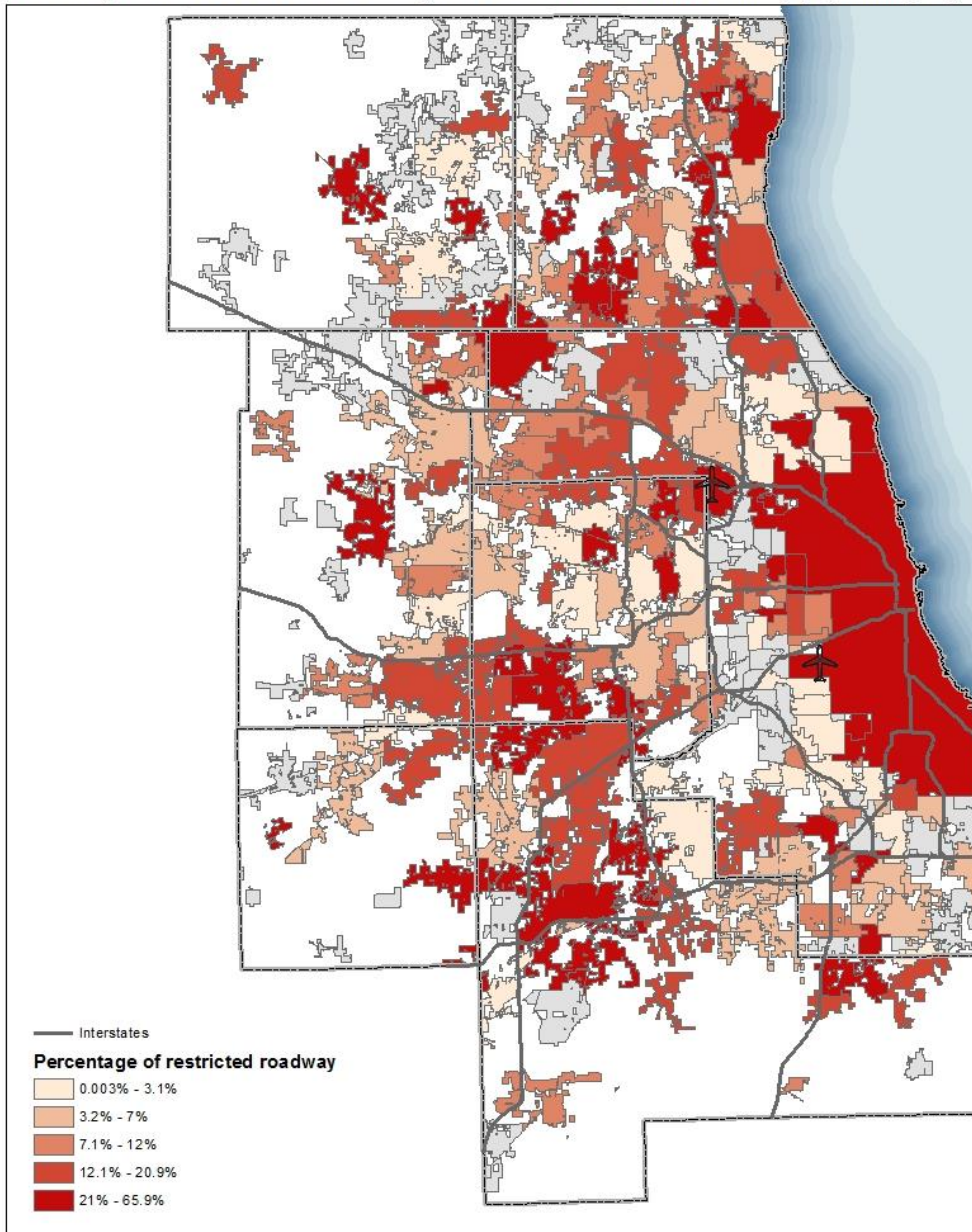
Source: Chicago Metropolitan Agency for Planning Analysis of Illinois Department of Transportation data and Illinois municipal and county codes.

While truck restrictions are present throughout the region, they are concentrated in several areas. The map below shows the percentage of restricted truck routes by municipality.

<sup>8</sup> B-plate trucks are vans and pickup trucks with performance characteristics similar to passenger cars and carrying "B" license plates. Light trucks are "step vans" and smaller delivery vans. Medium trucks are defined as heavy fixed-wheelbase trucks such as concrete mixers, scavenger trucks, double rear axle refrigerator units, etc., and some other lighter weight articulated vehicles. Finally, heavy trucks comprise the 73,280 and 80,000 pound maximum load vehicles which are tractor-trailer combinations.



Percentage of Interstate or arterial roadway miles with restrictions on truck usage, by municipality

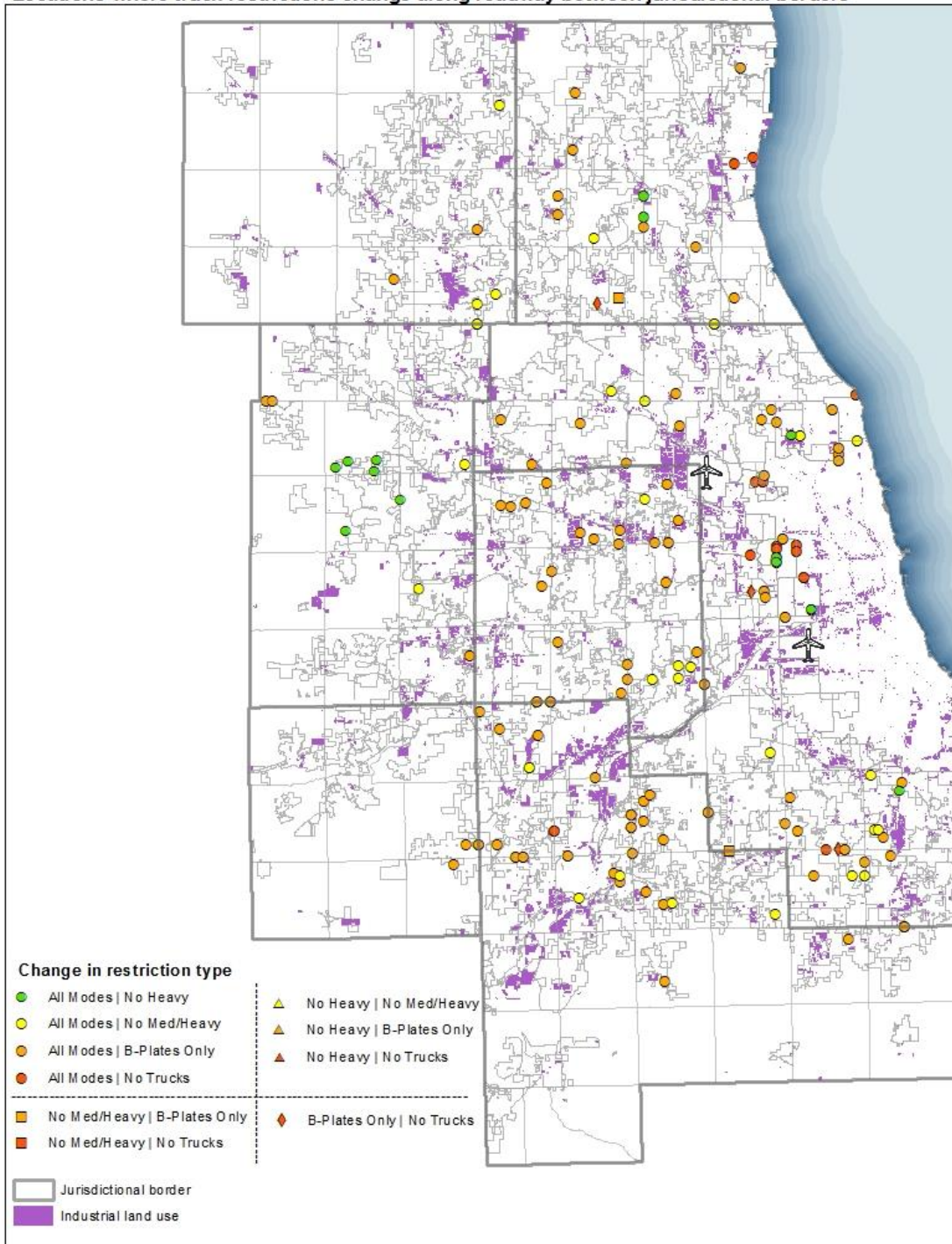


Note: Municipalities in grey have no restricted lane miles on interstates and arterials.

Source: Chicago Metropolitan Agency for Planning Analysis of Illinois Department of Transportation data and Illinois municipal codes.

As each local jurisdiction is able to establish its own truck routing restrictions, there are often changes to truck restrictions at jurisdictional borders. For example, a heavy truck traveling down Central Road in Arlington Heights can no longer travel down that road when it crosses into Rolling Meadows, requiring the truck to reroute. The map below shows the locations where restrictions on the roadway change at municipal, township, and county borders. There are many different ways a truck restriction can change, including different restrictions on the type or weight of the vehicle.

Locations where truck restrictions change along roadway between jurisdictional borders



Source: Chicago Metropolitan Agency for Planning Analysis of Illinois Department of Transportation data and Illinois municipal and county codes.

These changes in restriction type add a further layer of complexity to truck routes in the region, necessitating a truck traveling through many jurisdictions to check with each jurisdiction's truck restrictions, as these are not reported to IDOT's central database.

To quantify the impacts of truck routing restrictions on commercial vehicles, staff used CMAP's trip-based model to estimate the impact of truck routing restrictions on Vehicle Hours Traveled

(VHT) and Vehicle Miles Traveled (VMT). This analysis estimates the difference between the existing system and one without truck restrictions. This is not meant to provide a prescriptive scenario, but to instead provide a high-level analysis of the impacts of truck restrictions. In this analysis, restrictions were placed into two categories: policy-based (i.e. ordinance-based restrictions on weight and dimensions) and infrastructure-based (i.e. bridge height). As indicated in the table below, the scenario with no truck restrictions would result in a .93% decrease on regional truck VMT and a 1.31% decrease in regional truck VHT. Removing the policy restrictions provides a larger benefit to commercial vehicles than the removal of the physical restrictions.

**Impacts of truck restrictions on commercial vehicle VMT and VHT in the CMAP region**

Restriction Scenarios	Commercial VMT	Commercial VHT
Current state of the system	16,997,764	454,109
With physical restrictions, no policy restrictions	16,864,998	448,928
With policy restrictions, no physical restrictions	16,968,657	452,342
All restrictions removed	16,840,407	448,160
% change with only physical restrictions, no policy restrictions	-0.78%	-1.14%
% change with only policy restrictions, no physical restrictions	-0.17%	-0.39%
% change with no restrictions	-0.93%	-1.31%

Source: CMAP trip-based model analysis

**Next steps**

In subsequent work in FY 17, CMAP staff will present and analyze policy and statutory options that may improve truck routing at the local, state, and federal levels. In addition, CMAP is working with partners on related projects. The regional truck permitting initiative will develop an action plan to streamline the oversized and overweight truck permitting in the region.<sup>9</sup> The O'Hare Subregion Truck Routing and Infrastructure Plan will develop a truck routing and capital improvement plan for an 11-municipality area around O'Hare International Airport, serving as a pilot for normalizing truck routing across jurisdictions.<sup>10</sup>

In the next iteration of this analysis of existing local regulations affecting freight, CMAP staff will inventory and assess freight-supportive land uses as well as potential freight/land-use conflicts.

**ACTION REQUESTED:** Discussion

<sup>9</sup> This project includes participation from all seven counties in the region, the City of Chicago, and the Supply Chain Innovation Network of Chicago (SINC), along with technical participation from IDOT and others. For more information, see the project website at <http://www.cmap.illinois.gov/programs-and-resources/ita/regional-truck-permitting>.

<sup>10</sup> For more information, see the project website at <http://www.cmap.illinois.gov/programs-and-resources/ita/ohare-truck-routing-infrastructure>.